

Mitchell (J. K.) & De Schweinitz (G. E.)

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and their Fields of Vision.

BY

JOHN K. MITCHELL, M.D.,

Assistant Physician to the Infirmary for Nervous Diseases, Philadelphia,

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# A FURTHER STUDY OF HYSTERICAL CASES AND THEIR FIELDS OF VISION.

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IN *The American Journal of the Medical Sciences*, November, 1889, we described eight cases of hysterical anæsthesia, together with an examination of their fields of vision. The present communication comprises a much more extensive study of hysterical patients, with special reference to disturbances of the general and special senses, and includes the records, by way of contrast, of other cases in which the neurasthenic element predominated over pure hysteric manifestations, of two cases of spinal injury, with remarkable changes in the visual fields, and of one example of pure malingering.

The literature of the ocular manifestations of hysteria is an extensive one, the observation of alterations of the color-sense in this affection dating back to Galezowski's publication in 1865. An analysis of this literature in a purely clinical communication, such as the present is intended to be, would be out of place. Those interested



will find references to the more important papers in our previous communication;<sup>1</sup> in the thesis of Dr. Pansier,<sup>2</sup> which contains a complete bibliography up to the spring of 1892; in the monograph of Drs. Hermann Wilbrand and Alfred Saenger;<sup>3</sup> in a recent paper based upon studies in Nothnagel's clinic in Vienna, by Drs. L. V. Frankl-Hochwart and Alfred Topolanski,<sup>4</sup> and in the brochure of Dr. Wilhelm Koenig.<sup>5</sup>

The visual field in each instance was measured with the aid of a perimeter; either one modelled after Landolt's plan, or, where the patients were bed-ridden, with Schweigger's hand perimeter. The test objects (white and colored) were circular, one and one-half centimetres in diameter, set upon a dead black background, and fastened to long black handles. Usually, three methods were employed, namely:

(1) The test object was moved from without inward, and the point noted where it was recognized in each meridian.

(2) The test object was moved from within outward, and the point noted in each meridian where it disappeared.

(3) The test object was moved from without inward along each meridian until it was recognized; then it was moved from this spot outward until it disappeared, and the point noted in each meridian midway between the point at which it was originally recognized and the point at which it disappeared. Thus, it may have been recognized at 30 degrees and disappeared at 40 degrees; 35 degrees would be the point marked.

In some cases all three examinations yielded practically the same result; in others the results varied con-

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<sup>1</sup> Loc. cit.

<sup>2</sup> *Les Manifestations Oculaires de l'hystérie*, Paris, 1892.

<sup>3</sup> *Ueber Sehstörungen bei Functionellen Nervenleiden*, Leipzig, 1892.

<sup>4</sup> *Beiträge zur Augenheilkunde*, XI. Heft., 1893, p. 49.

<sup>5</sup> *Über Gesichtsfeld-Ermüdung und deren Beziehung zur concentrischen Gesichtsfeldeinschränkung bei Erkrankungen des Centralnervensystems*, Leipzig, 1893.

siderably. The diagrams which accompany this paper are all drawn according to the first method, many of them, however, being the results of numerous examinations, and, as has just been stated, some of them the result of a nearly uniform map with all three methods of testing. In recording the field of white, the patient was always told that the test object was white, and was asked to indicate the moment its movement, when entering into the periphery of the visual field, was perceived; thus, the field for white becomes equivalent to the field for form. It is important, as Frankl-Hochwart and Topolanski insist, in examinations of this character that the exact method which has been pursued should be stated; otherwise there can be no true comparison of diagrams from different observers. Even and perfect illumination of the perimeter, steady observation of the fixation point by the observed eye, and, as far as possible, removal of all objects from the immediate vicinity which could distract attention, were secured in each instance. In short, the rules laid down by Wilbrand received consideration.

A large element of uncertainty enters into the taking of a field of vision, especially when the subject is a hysteric patient, and we are keenly alive to the readiness with which such patients accept suggestion, to the influences of refractive error, of accommodative tire and fatigue of the retina, but think, none the less, that with the precautions that were taken, and with due allowance for factors that cannot be set aside, these diagrams are reasonably correct and represent the actual limits of the fields for white and colors as they existed at the time of examination.<sup>1</sup>

Except incidentally, we have not included in these examinations special attention to the displacement type

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<sup>1</sup> It may be stated that in some of the cases independent fields of vision were mapped by Dr. de Schweinitz's assistant, Dr. Bruner, and compared with the original fields. While in no instance was the map exactly similar, the main effect was always the same, and where previously reversal in the sequence of the colors had been found, it was again found on the second examination.



of the visual field, or that type which was originally described with anæsthesia of the retina. Those interested may consult Transactions of the Heidelberg Congress for 1887; Archives of Ophthalmology, Vol. XII, p. 428; and Vol. XXII, Nr. 2, p. 231.

As a type of normal visual field, to be compared with the maps illustrating the cases, we have assumed that Figure 1 fairly represents the physiological limits of the field for form and colors. The characterization of the form field by a continuous line and of the color fields by broken lines, as here represented, has been followed in the other diagrams.

The following seven cases are classified together, chiefly because they are examples of one or other of the varieties of anæsthesia which commonly occur in hysterical states.

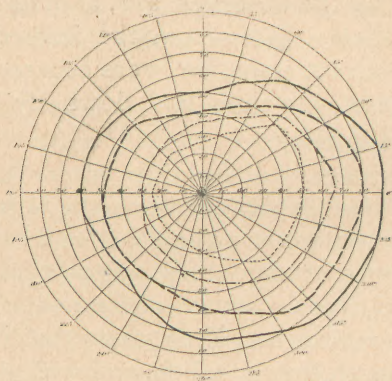


FIG. 1.

Diagram of the normal field of vision of the right eye for blue, red and green. The outer continuous line indicates the limit of the form field; the broken lines the limits of the color fields.

CASE I.—Hysterical unilateral anæsthesia; binasal hemianopsia; reversal of the color fields.

L. C.; servant; age eighteen; single; slight, intelligent girl; has at various times in the last year consulted Dr. J. K. Mitchell for trifling nervous symptoms and a rather troublesome dyspepsia. She had frequent vomiting for a time, and at one period was thought to have a gastric ulcer, but she rapidly improved on milk diet and had for some



months been in fair health, when in May, 1892, she returned to complain that her eyes gave her trouble; she stated that she had been operated upon for strabismus as a child. Her eyes smarted whenever she was in a strong light, and as the glasses she was using were evidently of little service, she was referred to the service of the Polyclinic Hospital for an examination.

Dr. de Schweinitz observed that the conjunctiva was insensitive on the left side, and Dr. Mitchell found, on studying the general sensibility, that there was complete left-sided dysæsthesia, including the ocular conjunctiva, the leg, arm, chest and face. She could not distinguish the head from the point of a pin beyond recognizing it as a touch, and even could not perceive a light touch. A deep prick was felt as slight pain, but presented the characteristic hysterical symptom of not bleeding. If not deep it was only recognized as a touch. Two points were readily separated at normal distances on the hand and face, if somewhat firmly applied to the skin. On the right side, though sensation was imperfect, there was no marked loss of pain sense. Heat and cold were tolerably well perceived on both sides, if the difference between them was considerable.

*Examination of the Eyes.*—The central vision was normal after the correction of a slight astigmatism, and there was no abnormality in the fundus oculi on either side. Pupillary reflexes normal.

The field of vision of the right eye consists of a small patch of preserved vision upon the temporal side twenty degrees in width. Practically, there is absence of the nasal half of the field, although the fixing point is not cut exactly by the dividing line, which passes five degrees in advance of it on the horizontal meridian. There is no field for colors, and there is normal color sense only at the fixing point.

In the left eye the field of vision for form is a small patch twenty-five degrees in width upon the temporal side. There is entire absence of the nasal half of the field, except on the horizontal meridian, where the dividing line passes five degrees in advance of the fixing point. The fields for colors have the general appearance of that for form, except the red field, which, on the horizontal meridian at the temporal side, is fifteen degrees larger than the form field. The field for green is the same size as the blue and form fields, except on the horizontal meridian, where it is eight degrees smaller.

The fields in this case have the general characters of binasal hemianopsia, with some irregularity of the dividing line.

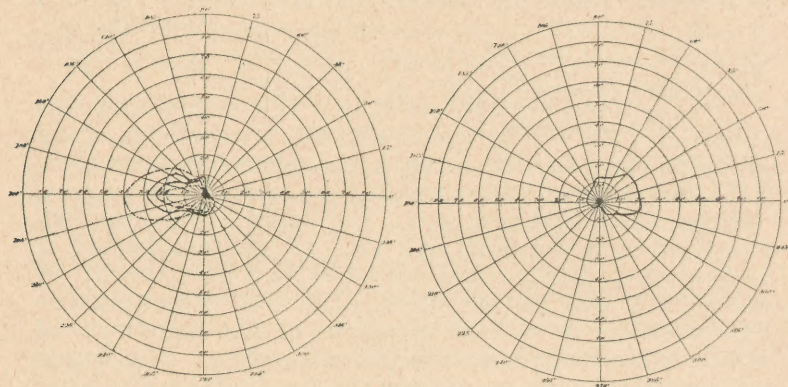


FIG. II.

Diagrams of the fields of vision of Case I. Irregular binasal hemianopsia; partial reversal in the color fields of the left eye; color perception only at the fixing point in the right eye.

It is certainly very remarkable that this case should present such decided hysterical symptoms in the fields of vision and yet have so few general hysterical characters. But for the accident, indeed, of examining the eyes for correction, the difficulties of sensation would never have been noted.

CASE II.—Hysterical disseminated hyperæsthesia and anæsthesia; normal form fields; partial reversal of the color fields, that for red being greatest in extent.

C.; female; native of America; age seventeen; single; private patient of Dr. S. W. Mitchell. The patient, together with some physical failure, probably due partly to perverted sexual emotions and to (doubtful) masturbation, presented an extraordinary picture of moral degeneration. Her school life was necessarily closed abruptly by the theft of money from a companion's trunk, for the purpose, she said, of procuring a cause for worry. Her parents are wealthy, and the money was of no moment to her. She did, in fact, burn it. She had a devoted woman friend, whom she called her "lover," and "wished to marry," and they exchanged



ardent love-letters and more ardent embraces. Her general health, while less good than formerly, was still fair, and her functions tolerably well performed.

The conjunctivæ showed an impaired sensibility, and areas of anæsthesia, varying in size and situation, came and went upon the body and limbs. Upon one examination a number of these "islands" would be found, two inches or less in diameter, in shape irregular circles or ovals. Another day there would be fewer spots of lost sensibility, and in different locations. Sometimes they were absolutely analgesic, at other times they displayed only an impaired touch sense.

*Examination of the Eyes.*—Central vision normal, with the correction of a compound hypermetropic astigmatism, as follows:

O. D.  $+ 75^c$  axis  $105^{\frac{6}{5}}$ .  
O. S.  $+ 25^s + 50^c$  axis  $75^{\frac{6}{5}}$ .

Amplitude of accommodation, with correcting lenses, normal; esophoria,  $2\frac{1}{2}$  degrees; double epiphoria from stricture of the lachrymo-nasal ducts.

In each eye the optic disc is oval, of good color, the fundus normal in appearance, and the vessels carrying normally tinted blood. Both conjunctivæ are slightly insensitive.

The field of vision of the right eye for form is entirely

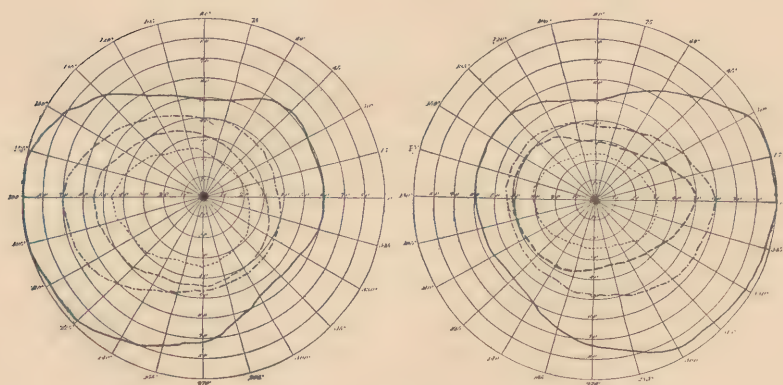


FIG. III.

Diagrams of fields of vision of Case II, showing normal form field and reversal of the red and blue lines, the red field being largest in extent.

normal. Of the color fields, the red is greatest in extent and about normal, the blue next in order and contracted. The green field, considerably contracted, occupies its usual position in the sequence of the colors. In the left eye the form field is normal. The red field is the largest of the color fields and greater in extent than it should be. The blue comes next, and is distinctly contracted. The green field is in its normal position, and is somewhat contracted, although not so greatly as upon the opposite side.

CASE III. — *Hystero-catalepsy*; disseminated anæsthesia; great contraction of form and color fields, with reversal of the blue and red lines, the red field largest in extent, and in some meridians exceeding the width of the form field.

W. R.; female; aged twenty; born in America; private patient of Dr. Weir Mitchell.

This patient, in March, 1892, when apparently in the best of health, fell suddenly into a short fainting fit. On returning to consciousness she sobbed violently for some hours. This attack was followed by others, with contraction of the left side of the body, spasmodic movements, complete loss of consciousness and tumultuous heart. Sudden recovery was usual, and was followed by severe headache and pain in the chest. The later attacks were not so severe as the first. In the earlier ones the movement was confined to one side, but afterward affected both. Return to consciousness after these attacks was instantaneous, like waking from sleep, and she complained usually of numbness and soreness of the limbs which had been contracted during the attack.

April 13th, soon after the first attack, she fell into a cataleptic state while in a dentist's chair. She had a second attack on the 15th, and one on the 23d, which was a long cataleptic condition lasting for twenty minutes. Later ones have been less violent and of less duration.

On examination, the patient was found to be a well-made, ruddy, strong-looking girl, with no signs of disease, and she confessed upon close questioning that she thought frequently the attacks were precipitated by any cause which irritated her; for instance, her family's denying her some small pleasure which she desired. Examination of sensation revealed a curious condition over the whole body. Sensation was impaired to touch,



to pain and to temperature, but we were distinctly impressed with the idea that there was an element of dissimulation in the difficulty of distinction between heat and cold. While all sensibility was thus impaired, the whole surface of the body was islanded with spots in which sensibility was a little better. There were also islands in which anæsthesia was complete.

It was possible to make only two examinations, as the patient did not remain long under treatment, being here upon a visit on her way to Europe. But on the second examination the areas of anæsthesia and sensibility were quite different from the first examination. There was no tenderness of the spine. The knee and ankle-jerks were somewhat excessive. The heart was a little fast and was easily excited, with a slight blowing murmur heard at the base.

*Examination of the Eyes.*—Central vision normal after the correction of a myopia of 3 D.; and a corneal astigmatism of 2 D.; amplitude of accommodation 10 D.; esophoria 1 degree; right hyperphoria  $\frac{1}{2}$  degree. In each eye a vertically oval optic disc of good color and the general fundus in healthy condition; pupillary reflexes normal.

The fields of vision presented marked concentric contraction, with reversal of the blue and red lines, the red being largest in extent, and in some meridians exceeding in limits that of the form field. The green field occupied its natural position in the sequence of the colors, but was greatly contracted.

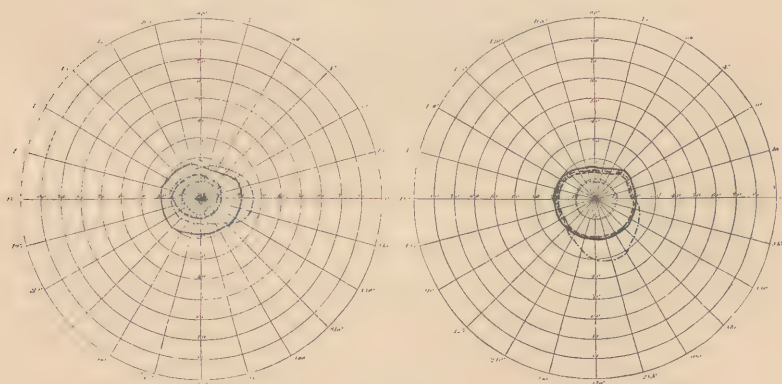


FIG. IV.

Diagrams of the fields of vision of Case III. Concentric contraction; reversal of the red and blue lines, the red field exceeding in some meridians the dimensions of the form field.

The alterations of sensation in this case were curious, and the distribution of anæsthesia and dysæsthesia in small areas over the body surface varying in situation from day to day was very unusual, and, with the cataleptic conditions, sufficiently marks the hysterical character of the trouble.

A like variability in position of areas of altered sensibility was found in the case of K. W. (Case XI.), in whom anæsthesia and hyperæsthesia were found to exchange places with one another from day to day.

CASE IV. — Hysterical local anæsthesia; possible spinal injury. Reversal of the color fields, red and blue and, partially, green and blue.

M. D.; aged twenty-four; a native of New Jersey; hospital patient of Dr. W. Sinkler. In 1889 had convulsions and was unconscious for two days. Dr. C. B. Penrose removed the right ovary in May, 1889. After this she was better until September, when convulsions reappeared. In October the left ovary was removed. In September, 1890, she fell, striking her back. She was in bed for three months, and is said to have had spinal meningitis. Dr. Joseph Price operated for pelvic adhesions. On rising found right leg weak, and could not lift the foot. Nervous prostration followed, with the result of entire loss of power in the right leg.

There is pain and tenderness in the spine, the back gives out on slight exertion, and there is absolute anæsthesia of the whole right thigh. The heart, etc., are normal, bowels constipated, appetite good. Menses appeared every two weeks until the ovaries were removed. The right leg is feeble and presents the anæsthesia before mentioned; no ataxia; K. J. normal; no clonus.

*Examination of the Eyes.*—Vision in each eye  $\frac{15}{100}$ ; a considerable degree of compound hypermetropic astigmatism; eye-grounds normal.

In the right eye the form field is about normal. The red field is largest in extent, except at the nasal horizontal meridian, where it is exceeded in extent by the green and coincides with the blue. The blue field is exceeded in extent by the green at the meridian named and in the upper and inner quadrant; elsewhere it exceeds the green field in extent. In the left eye the form field is normal; the red field is everywhere the greatest



in extent and about normal in size. The blue field, considerably contracted, comes next in order, followed by the green field, which, at the horizontal meridian of the temporal side coincides with the blue line.

A third diagram of the field of vision is appended, taken somewhat later than the other two, and showing the same peculiarities even more marked, reversal of the red and blue lines being complete.

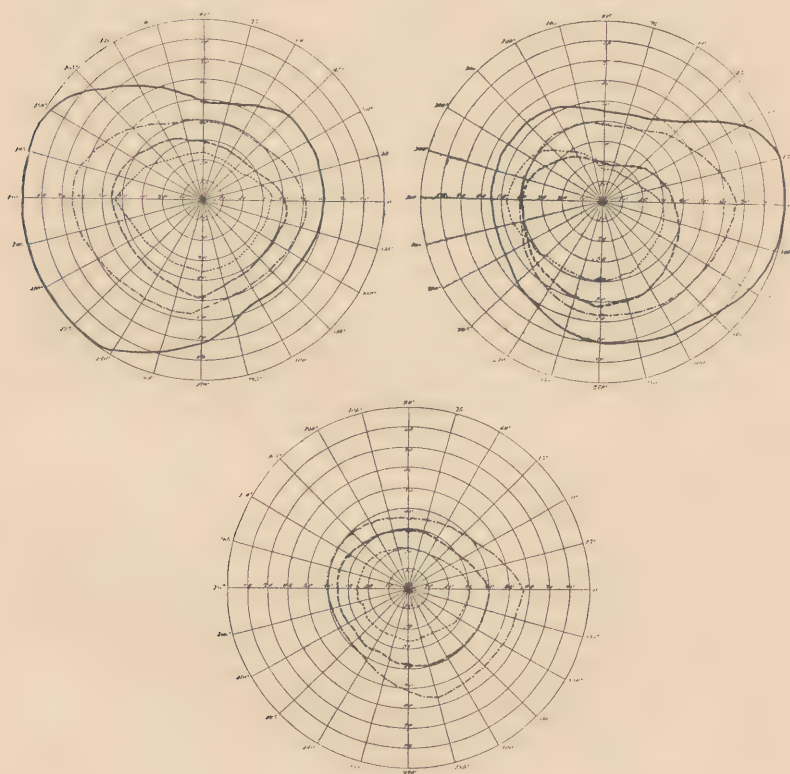


FIG. V.

Diagrams of the fields of vision of Case IV, showing practically normal form field, complete reversal of the blue and red lines, and irregular partial reversal of the green and blue lines.

CASE V.—Universal hysterical anæsthesia; great contraction of visual fields.

A. C.; female; married; aged 26, housekeeper; a patient of Dr. Morris J. Lewis, was admitted to the In-

firmary April 14, 1893. Her previous history was as follows:

She was married at 18, and had previously had good health, with the exception that menstruation had always been painful. In eight years she had had five children, of whom three are living, and two died within the first fortnight.

Following the loss of the last child but one, sixteen months since, she began to suffer with constant indigestion, eructations of gas, poor sleep and increasing vague fear, which lately has developed into an acute alarm lest she should die at any moment. For weeks before admission she had taken no solid food, and very little of any kind. She has sometimes stiffness of the jaw, and cannot open her mouth. For a week past she has been subject to attacks of choking, three or four times daily; has constant epigastric pain, and has had jaundice on several occasions.

Her weight has diminished by twenty pounds in the last year and a half. At the time of admission all these difficulties were aggravated by a melancholy and depressed state of mind, consequent upon her recent desertion by her husband. Her tongue was red and glazed and denuded in patches, and she suffered a great deal from leucorrhœa and bearing-down pains. On examination, no trouble was found in the lungs, but the second sound of the heart was markedly accentuated.

She improved, however, very rapidly, both mentally and physically, and in a few days was eating ravenously, although still suffering from abdominal discomfort. After one month in the hospital some delusions still remained, such as that people were talking about her.

In the middle of June, when the patient was, physically, almost well, the discovery was made, upon her own complaint, that sensation was disturbed over the whole surface. On examination it was found that she was almost without pain-sense anywhere in the body. Even the tongue shared in this condition of loss of sensibility, so that she could not distinguish solutions of sugar or salt, or vinegar or pepper. The patient says that her attention was called to it by dullness of vision, so decided that she could look directly at the sun without perceiving anything more than a slight luminous spot.

An examination of her sensibility on June 14, 1893,



revealed complete anæsthesia to touch and pain, with the following exceptions: a long narrow area, beginning over the middle of the biceps muscle on the right arm, extended down the front of the right arm, about two inches wide, to the middle of the fore-arm, in which pain sensation was slight. At the tip of the right thumb, and at the tip of the right middle finger, pain sensation was fairly acute. On the left arm a similar condition existed, except that the stripe of better perception was narrower, and was interrupted at the elbow by an area of complete insensibility. On the back of the left hand, the thumb from the second joint to the tip, and all four fingers from the second joint to the tip, preserved some pain and touch sense. On the right side, the tip of the middle finger and the tip of the thumb were somewhat sensitive. On the trunk there were two areas—one some two or three inches long in the middle of the right hypochondrium; one in the left epigastric region, extending as high as the sixth or seventh interspace, and only an inch or so wide—which were sensitive. Immediately below the right clavicle was another small spot where touch sense was preserved imperfectly. A line up both sides of the neck, from the clavicles to the ears, extending on to the cheeks and forward under the eyes and over the forehead was also sensitive. On the back there was a spot in the cervical spine, another over the mid-dorsal region, and a third over the lower lumbar region, where sensation was preserved imperfectly; and in the middle of the sole of each foot was a small spot where pain was perceived.

This very curious distribution of hysterical anæsthesia lasted only a few days, and, at the end of a week, sensation was rapidly returning without any special treatment.

*Examination of the Eyes.*—Central vision normal; slight deficiency in the amplitude of accommodation; no anomalies of the external ocular muscles. Small optic discs, moderately hyperæmic, with edges slightly veiled; pupillary reflexes normal.

The fields of vision for form are greatly contracted, those for colors being proportionately diminished in extent; colors are correctly appreciated, and their fields nowhere exceed 10 degrees in extent to either side of the fixing point. Even in this limited area there appeared to be reversal of the red and blue lines, but this was not determined with certainty.

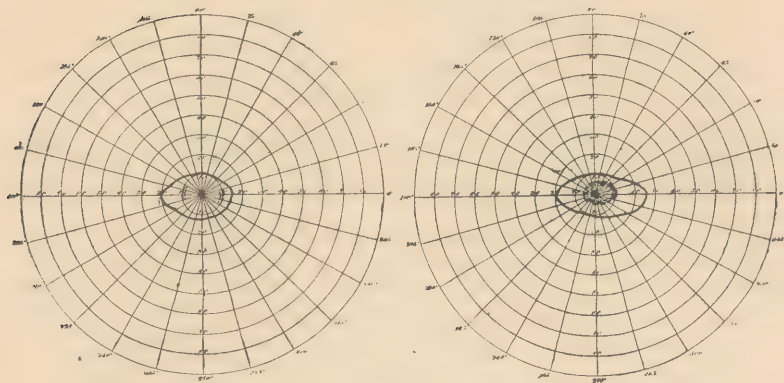


FIG. VI.

Diagrams of the fields of vision of Case V, showing marked concentric contraction.

CASE VI.—Hysterical ptosis and hemianæsthesia; irregular and varying reversal of the color fields.

S. B.; aged twenty-one; female; single; a native of America; a hospital patient of Dr. Wharton Sinkler's. In 1889 she fell from a horse and has never been well since. In July of 1890, a loss of power on the left side came on gradually and lasted two weeks. She is complaining of a tight, girdle sensation around the waist, pain across the back, a bursting feeling over the right eye, and lack of sensation upon the left side. There is no headache; she is very nervous and sleeps badly; the bowels are regular; the appetite poor. There is complete left anæsthesia with failure to appreciate the prick of a pin over the entire left side, but no demonstrable palsy.

Twenty and thirty times a day, and sometimes oftener, there are attacks of complete ptosis in the left eye, lasting from one to fifteen minutes, during which time the lid is spasmodically closed, and the eyeball beneath it rolled upward. The attack begins with a curious tremor—or, rather, quiver—of the upper eyelid, which then spasmodically shuts over the ball, and the condition described results.

*Examination of Eyes.*—In each eye there is an oval optic disc, a slight crescent at the outer side, some superficial retinal haze, but, on the whole, fairly healthy eye-grounds. The vision is normal in each eye; the accommodation equals 8 diopters; esophoria, 4 degrees for the distant point.

On March 7, 1891, while the hysterical symptoms were in their highest development, the following fields were obtained: the white field is the greatest in extent, except down and in where it is slightly exceeded in area by the blue, yellow and green fields, and up and out where, on the meridian of  $45^\circ$ , it is slightly exceeded in extent by the yellow field. The blue field is exceeded in limit by the red and yellow fields, which for the most part run upon the same line, except in the lower and inner quadrant, and directly below where the blue field is greater in extent; then follows the red field, part of the time coinciding with the yellow and part of the time passing in advance of it. In this area the red line passes to the inner side of the blue and the yellow lines, part of the time coinciding with the green until it again becomes the greatest in extent, with the exception of the yellow, with which it coincides. The green field is the smallest in extent of all of the colors, in this particular occupying its natural position in the sequence of the colors, except down and out in the meridian of  $330^\circ$ , where it coincides with the blue field; directly down, where it coincides with the red field; and down and in, where for a short distance it lies between red and blue, and for a still shorter distance becomes the greatest in extent of all the colors, being even in advance of the line of the white field. This is in the meridian of  $225^\circ$ . The left eye presents similar conditions, as may be seen by consulting the diagram.

It will be noted that in addition to this partial reversal in the order of the colors, that the extent of all of the color fields is greatly in excess of normal, and, as has already been noted, is in some instances in excess of the white field.

On May 28, 1891, there had been some improvement in the woman's general condition, although not very marked, the ptosis, etc., continuing. A field then taken shows the changes similar to those figured.

In July 29, 1891, when the patient was practically restored to health, the anæsthesia having disappeared and the woman having gotten down to honest work as a trained nurse, another color field was taken; which is practically normal in all respects, both in extent and sequence of colors.

The sequence of the colors in this case has been described at some length for the purpose of showing what irregular and contradictory results may be obtained



with hysterical patients in such examinations. Practically, any sequence could be maintained during the hysterical period; any color could be made to yield the field of greatest extent, provided it was the first color used in the examination. So, also, the patient was open to suggestions, and the colors could be made to follow in almost any order, and the lines made to cross or recross in almost any manner. It is, further, an interesting example of the restoration of the normal visual field after the disappearance of the hysteria and its accompanying anæsthesia.

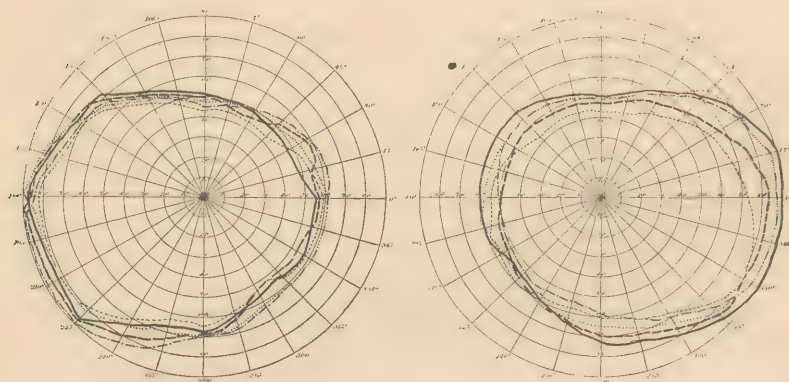


FIG. VII.

Diagrams of the fields of vision of Case VI. Varying and irregular reversal of the color fields.

CASE VII.—Hysterical hallucinations and slight anæsthesia; normal form and color fields.

L. M.; female; single; aged thirty-three. This patient has a neurotic family history, and has been from childhood very nervous. She broke down from over-study at the age of sixteen, and had an intestinal trouble from which she never entirely recovered. In 1875 she had her first hysterical attack, which was renewed in 1888, and followed by a third in the spring of 1892, just before she came under the care of Dr. Weir Mitchell. All of these attacks presented somewhat similar features; rigidity in the neck and legs, with convulsive movements of the toes, lasting for an hour or more. In the third attack she was delirious.

She is fantastically peculiar about what she eats, and

has not, since 1875, eaten ordinary food at all, although her appetite is enormous. About one-half of the time, beginning a few days before her menstrual periods and lasting for about ten days afterward, she suffers from indigestion in various forms, and is extremely constipated. During this time the nervous symptoms are much worse.

In the winter of 1892 she began occasionally to see flashes of light, and soon she had visions of coils of spotted snakes, and at last distorted faces came frequently before her. One peculiar symptom, of which she made great complaint, was that she could not restrain her mind from carrying on within herself a sort of double conversation, in which she asked and answered questions—often absurd ones. It usually turned on the person she had last seen, or on the next person she expected to see, or on any triviality of the day's doings.

She suffered from a slight anæsthesia of the skin of the face and from a feeling of numbness, most marked on the right side of the head. She was very courageous and truthful, and most persistent in carrying out any line of treatment laid down for her by which she hoped to be benefited. She finally made a good recovery.

*Examination of the Eyes.*—Central vision and amplitude of accommodation normal; orthophoria; slight corneal astigmatism, in the right eye, .75 D. axis 135; in the left eye, .37 D. axis 90; oval optic discs, with excessive capillarity of their surfaces; no other lesion in the fundus oculi. The fields of vision in this case are entirely normal, both for form and for color.

Although there was anæsthesia in this case, it was of minor character. This should be noted in connection with the fact that there was no disturbance in the field of vision and in the normal appreciation of the colors.

The following three cases are classified together as examples of hysterical hyperæsthesia.

CASE VIII.—Hysterical hyperæsthesia; normal form-fields; practically normal color fields; very slight excess of the normal extent of the color lines on the temporal side.

D. L.; female; of Hebrew parentage; aged twenty-seven. Private patient of Dr. Weir Mitchell.

For more than four years the patient was under treatment for dysmenorrhœa, prolapse of the left ovary and general nervousness. Her cervix uteri has been dilated and dilated again. She has had various neuralgias and pseudo-paresis of one limb and another, tender spine, tender ovaries, headache, indigestion, rectal and vesical tenesmus, vaginismus, and difficulties in the use of her eyes have followed in quick succession, new symptoms constantly appearing as interest in the old ones slackened. Her physician had long suspected masturbation to be at the bottom of the pelvic neuroses, but was unable to prove it, until recently a confession was extracted from her of the truth of this suspicion. An anxious and sympathetic family witnessed the hysterical panorama with ever fresh compassion and ready services.

This lady belongs to a family, of whom four have been under Dr. Weir Mitchell's care in the last three years for neurotic troubles, including a niece of the patient, a sister and a first cousin.

At present she is of fair general appearance, in good flesh and of wholesome coloring.

Her most remarkable and interesting symptom is the muscular hyperæsthesia from which she suffers. Pressure over a bone, wrist, tibia, rib or elsewhere seems to cause no pain, but touch over a muscle ever so lightly and she shrieks and "flops" in bed, with hurried or sighing respiration and complaint of agonizing pain. This condition is worse upon the left side, but even there not absolutely universal. There are islands of less excessive sensitiveness, but these vary in position from day to day. There seems some slight loss of sensibility to touch with a needle point in places.

There is ovarian tenderness, especially on the left side (the situation of the prolapsed ovary). There is a similar excessive spinal tenderness most marked in the upper dorsal region; and, as an exception to the rule of pressure over superficial bony surfaces producing no pain, over the sacrum. K. J. is excessive,—doubled. No ankle-clonus. The heart and lungs are normal, nor is there any evidence whatever of organic disease.

*Examination of the Eyes.*—Both eyes highly myopic, but no lesions in the fundus oculi other than those common with high myopia. Owing to the exceeding nervousness of this patient, it was impossible to make an extensive examination of the color fields, and this was



limited to four meridians in the right eye. After a number of trials the following results were obtained:

The field of vision is entirely normal in extent, so far as form is concerned; colors are appreciated in their natural order, and there is no change in the extent of the color fields, except a slight increase of the normal limits on the temporal side. This slight change, however, can scarcely be looked upon as of any importance, especially as a subsequent examination of the patient when she was in much better physical condition, by Dr. William Dennett, of New York, showed that it was impossible to get accurate results, although he found, as we had done, that there was no lessening of any of the fields. Further than this, however, the answers were contradictory. He obtained entirely different results in almost any part of the field with the same or with different colors.

This patient, after long and careful treatment of her hysteric difficulties, made an excellent recovery and is now perfectly well.

CASE IX.—Hysterical disseminated hyperæsthesia; normal form fields; partial coincidence of the red and blue lines; contracted green fields.

H. S.; male; a Russian; aged sixteen; was sent to Dr. J. K. Mitchell by Dr. M. V. Ball in May, 1893, with the following history: He had been in this country a little more than a year. His general health and appearance were fair, and the history of his present difficulty was—he had never been free from pain in the feet and lower legs since an inflammation of the kidneys following scarlet fever when he was seven years old. The pain had located itself especially in the right popliteal space. This, however, had never been severe enough to greatly disturb or annoy him.

Eighteen months before examination, in the latter half of 1891, while in Russia, he began to have pain throughout the whole right side of his chest. This seemed to extend around the ribs into the back, and affected also the feet and knees in a general way. These regions, somewhat vaguely described by the patient as "painful," were also excessively tender to the touch, and his statement is that now he suffers constant pain in the chest on both sides. It is made much worse by pressure or movement. There is sharp pain in

the hips. The pains, while constant, have yet degrees, and are at times more severe than at others, often spontaneously becoming of extreme violence. He has also cramping pains in the fingers. All these areas of pain are made worse by fright or excitement.

Upon examination it was found that the chest, especially over the sternum, was so sensitive to touch that the lightest pressure of a finger appeared to give exquisite pain. The same was true of the arms and forearms; of the face (on both sides); of the tibial region in both legs, though the left was somewhat more hyperæsthetic, especially just above the ankle. This tenderness was more marked in the fore-arm and hand than on the upper arm, and he said that a touch gave a sharp stabbing pain. The nape of the neck was also excessively sensitive to pressure. Common sensation was perfect throughout the body. The head and point of a pin were perfectly distinguished everywhere, but a mere touch with the point was said to cause acute pain.

All these symptoms are worse in bad weather, especially when cold or rainy. Heat does not affect them.

The patient's knee-jerk is normal, and his station good.

*Examination of the Eyes.*—Direct vision normal; slight haze in each retina; otherwise no changes in the fundus oculi. A moderate degree of hypermetropic astigmatism. The form field in each eye is normal; there is distinct contraction of the green field, most marked upon the right side, and partial coinciding of the red and blue lines, but no reversal.

In this curious case of general hyperæsthesia, there is undoubtedly a very large element of hysteria; how large it is difficult to judge. But the patient's pleasure in detailing his symptoms, the dramatic start and expression with which he received a finger touch, rendered us very suspicious of the whole history. It may be summed up as an unusual form of hysterical hyperæsthesia. The lad is unusually bright and intelligent, and, although only a few months in this country speaks excellent English, and is a hard student, preparing for college.

CASE X.—Hysterical sciatica and hyperæsthesia of the left side; form fields normal; slight contraction of the color fields on the right side.



Mrs. R. D., of Mobile, Ala.; private patient of Dr. S. Weir Mitchell; aged thirty years; of Jewish parentage; was married early, and divorced after two years from a brutal husband, who has since become insane.

She has had one miscarriage, and has been treated for uterine troubles. She has masturbated since childhood; calmly discusses the habit, and says that she can refrain for six months, but that then it takes possession of her and she indulges herself freely for two or three weeks.

She has a highly developed drug habit. For three years past she has taken 60 grains of sulphonal at night, and McMunn's Elixir at every period, not because she suffered pain, but because she was uneasy and uncomfortable, and was relieved by the opium.

Her complaint is of "agonizing pain" in the left hip and leg, extending into the great toe; excessive weakness, headache and sleeplessness. The trouble began four years ago with an attack of "pleurisy," or, more probably, of inter-costal neuralgia. After a few days of slight pain in the leg at this time, she found herself one night out of bed in an agony of pain, which required morphia. The pain has persisted in the whole leg and hip ever since, with exacerbations. It has not, however, been sufficiently great to prevent her traveling over most of Europe and a great part of this continent, where, in the intervals of treatment at sanitariums and health-resorts, she enjoyed herself by securing a collection of extraordinarily various opinions from physicians of all sorts and sects.

She is quite stout but anæmic, and has the countenance of a confirmed hysteric. She shrieks if the left leg be touched ever so lightly, and, indeed, will hardly allow the right one to be handled; exclaims if the bed is approached from the left side, and says that she cannot use her left arm, because it gives her pain in the great toe on that side. At times she will not allow even the bed clothes to touch the leg; yet she can and does walk about the room without the slightest pain or trouble. She has no paralysis, and no enlarged glands or other evidence of specific disease. There is slight swelling of the left leg about the lower part. She is highly emotional; talks cheerfully; has an excellent appetite and a great desire for medicine. An examination of the abdomen and chest reveals nothing abnormal.

*Examination of the Eyes.*—There are no alterations of importance in the fundus oculi. With the exception of

slight contraction of the color fields there is no change; the contraction is slightly greater upon the right side than upon the left; in fact, the left field is not far from normal.

This is distinctly a case of hysterical imitation of sciatica, founded on a real original nerve-pain.

The following four cases are classified together under the general term of major hysteria, because they represent the highest types of hysterical manifestations.

CASE XI.—Major hysteria; hysterical rapid breathing; considerable contraction of the visual fields, but no reversal.

The following remarkable case was reported in full by Dr. S. Weir Mitchell in a lecture on hysteria, published in the *American Journal of the Medical Sciences*, in March, 1893. The notes, which are very full and cover a period of ten years, we give only in abstract, as the case is easily accessible.

K. W.; female; single; aged twenty-eight. This patient's first hysterical trouble was an affection of the knee-joint, which was treated at the Infirmary for Nervous Diseases and relieved, although it afterwards relapsed. Her family assert that after this, from July to October, 1889, a period of sixty-four days, she remained in a trance, brought on by the news of the death of her father, and it was said that during this time she took neither food nor drink, except that for the last four weeks she received daily a small quantity of water by the mouth. Strange to say, although she ate nothing, she had large passages from the bowels, produced by an enema given once a week!

On her second admission to the Infirmary for Nervous Diseases, March, 1892, she was found to have a respiration of 120 to 150 a minute, very shallow, almost entirely upper-costal in its character and perfectly regular. Her pulse at the same time was about 100 a minute. When in bed, she could move the left leg perfectly well, even against resistance; but she dragged the left foot when walking. Station good; knee-jerk increased; no ankle clonus. The tactile sense was hard to determine on account of the difficulty of truthful statement by the

patient. The left side was more sensitive to pain than the right.

A curious growth on the anterior aspect of the left leg was illustrated in Dr. Mitchell's paper in the *American Journal*, and reported on by Prof. Duhring. The case did not do well, and was finally discharged from the hospital, practically unimproved.

*Examination of the Eyes.*—Conjunctivæ insensitive; pupils normal in reaction; good fusion power; no lesion in the fundus oculi.

In the right eye the form field is normal in extent; there is concentric contraction of the color fields, but they occupy their normal position. In the left eye the same is true, except that there is very considerable contraction of the form field, and that in the horizontal meridian on the temporal side the red and blue lines coincide.

A chart of the field of vision (colors), taken during a semi-hypnotic condition, showed no material difference from the others, save that the fields were more contracted.<sup>1</sup>

CASE XII.—Major hysteria; convulsions; sterno-cleido-mastoid and splenius spasm; irregular contraction of the visual fields, but no reversal.

Girl; aged seventeen; American by birth; private patient of Dr. J. K. Mitchell.

The family history is a suspicious one. The patient's mother was of a tuberculous race, but died in child-bed. She, at one time, used opium to excess. A sister has chlorosis; two aunts are "nervous." The girl's own health has not been first-rate. An attack of diphtheria left her extremely susceptible to throat inflammation from trifling causes. She is very intelligent, quick, unusually well-read and observant. Her temper is at times very violent.

She returned to school in the fall of 1891, after a summer in the country, in excellent health, and undertook work as a pupil teacher. She found it trying and gave way occasionally to fits of uncontrolled temper. Late in November, she began to suffer with pain in the supra-orbital region, with a spot of particularly intense pain and tenderness on the side of the nose, the neuralgia occasionally darting backward toward the ear and from the

<sup>1</sup> The diagrams of the visual fields may be seen in Dr. Weir Mitchell's original paper.



ear down the neck. This was confined to the left side. After this had lasted, with short intermissions, for two or three weeks, the darting pains began to be accompanied with strong twitching of the muscles of the left neck and shoulder.

When first seen in December, these spasms were occurring several times daily and lasting from a few minutes to hours each time. The head was jerked a little toward the left with each spasm, and the pain was described as intense. The pupils were unaffected during the attacks. The left sterno-cleido-mastoid and splenius both contracted, rotating the face toward the right, while the head jerked to the left. Sometimes the platysma seemed to share in the irritation.

Treatment was extremely unsuccessful, and the girl grew gradually worse, until it became necessary to put her to bed, which was done, and absolute rest was insisted upon. At first, for a time, she grew a little better, then the ache and the convulsive movements of the head returned, growing steadily more severe in spite of every effort and culminating, in January of 1892, in violent convulsions; these began with retraction of the head and went even to complete opisthotonos.

The convulsions were usually, but not always, preceded by extreme convergent strabismus. In the intervals the patient, while sometimes perfectly conscious and clear-headed, complained of loss of vision,—the pupils were widely dilated, almost entirely insensible to light and varied in their relative size, sometimes one being the larger and sometimes the other. During this whole period, which lasted about six weeks, the excessive pain was constant, and it finally became necessary to resort to large doses of morphia repeated throughout the day to keep the patient reasonably quiet. She grew somewhat better in March, but had one or two violent convulsive attacks, the last one with delirium, and in it she assaulted her nurses. Her family was worn out and the supply of nurses exhausted. Dr. Mitchell had the patient removed to the Infirmary for Nervous Diseases. She was carried down-stairs in a semi-conscious state, wrapped in a blanket, conveyed to the infirmary and put to bed, and from that day made a rapid and perfect recovery.

She was seen a year after leaving the Infirmary for a slight return of the aches at the base of the brain, but she had had no more twitchings with them.

*Examination of the Eyes.*—When first seen, the central vision was one-half of normal, the refractive error a moderate compound hypermetropic astigmatism and slight insufficiency of the external recti muscles; the eye-grounds were perfectly healthy.

The field for white is contracted above and to the temporal side in the right eye, and there is also contraction of the color fields, most marked for green; but in perfectly regular order; there is no crossing of the lines and no reversal. The color sense is perfect for all colors and all shades.

In the left eye the vision is two-thirds of normal; there is great contraction of both form and color fields, again in perfectly regular order. The depreciation of central vision was accounted for by the refractive error.

Somewhat later, at the height of the attack, when all the major symptoms were most pronounced, there was well-marked homonymous diplopia from partial paralysis of the left external rectus muscle; but no change in the ophthalmoscopic picture, save some distension of the lymph sheaths around the central vessels, and the central veins a little larger than normal. It was impossible to map a color field at this examination.

Still later, during the patient's stay in the infirmary, a number of fields of vision were mapped out, of which the following diagram is an example, showing considerable contraction of the form field, of the blue and red, and particularly of the green fields.

After the patient had recovered, the fields of vision were measured again and were perfectly normal in extent.

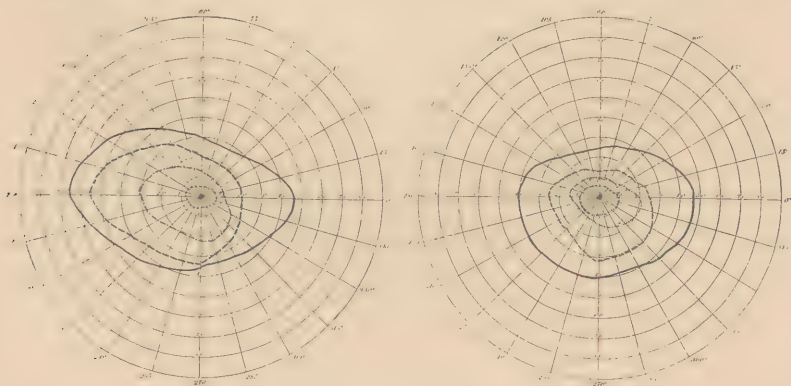


FIG. VIII.

Diagram of the fields of vision of Case XII, showing concentric contraction, but no reversal.

CASE XIII.—Hysterical anorexia; possible tuberculosis; moderate contraction of the visual fields, but no reversal.

V. B., a wretchedly thin and anæmic child of seventeen, was brought from Michigan to Dr. S. Weir Mitchell in the autumn of 1892. She had complete hysterical anorexia, and constantly complained of indigestion and abdominal pain. Her bowels were obstinately constipated. She was emaciated to an extraordinary degree, very sleepless, and the object of devoted attention from her doting parents, for whose benefit a continuous dramatic performance went on pretty nearly day and night. She may fairly be described as a highly neurasthenic patient, although a suspicion of the possibility of tubercular disease of the intestines cannot be denied.

*Examination of the Eyes.*—Central vision normal; oval optic discs of good color, but retinas slightly hazy; moderate hypermetropic astigmatism; no anomalies of the external ocular muscles, save slight esophoria; drooping of both upper lids, but hardly sufficient to justify the term ptosis; moderate contraction of the form fields, and some coincidence of the blue and red lines, but no reversal. The green field is proportionately more contracted than the others, especially upon the right side.

CASE XIV.—Hysterical dyspnœa; hypnotizable subject; general hysterical symptoms; slight contraction of color fields.

E. W.; aged twenty-one; unmarried. Patient of Dr. M. J. Lewis in the Dispensary of the Infirmary. The girl had never been in very good health, was subject to frequent gastric disturbances, especially a strong tendency to vomiting on small provocation.

For some months during her mother's last illness, in which she nursed her, there was a constant uterine flow. After this, in June, 1890, two years previous to her first visit to the hospital, she had become very much depressed and run down, and was for some months confined in her bed with profound depression and general nervousness, with hysterical attacks of laughing and crying. At the same time, she had a beginning of one of the present troubles, namely, stammering when excited. She had, too, attacks of fainting, sometimes three or four a day, but not of late so often as formerly; palpitation of the heart, poor appetite, frequent vomiting, probably intentional. She seems not ill-nourished, and



her color is fairly good; but she sleeps badly, and says that she cannot lie down, but must sleep sitting in her chair on account of the difficulty of breathing which she experiences when recumbent. Being made to lie down during the examination, in order to study this difficulty, her breathing was found to be somewhat increased in rapidity and very irregular while supine. She was not flushed or pale at this time; she had no pain; no heart-murmur was audible.

She had a slight oedema of the feet, and her menses occurred every second week. The patient proved to be readily hypnotizable, and could be thrown into a minor degree of the hypnotic state by mere suggestion. On a later occasion her blood was examined, and the number of corpuscles found to be 5,200,000 per cmm., and the hæmoglobin 90 per cent.

During the preparation for this examination, the patient suddenly began to wink very rapidly with both eyes. No notice was taken of this, and her finger was pricked to draw the blood. The moment that the needle touched her, she began to breathe rapidly and noisily; threw her head slowly backwards, closed the eyes, breathing more slowly, and thus remained unconscious for four or five minutes. She was let alone during that time, and presently came gradually to herself, but was very shaky and nervous. On a second pricking of the finger, she went off again rather more rapidly as the finger was stuck, and remained unconscious for about one minute. The patient was lost sight of, having left the dispensary because she objected to Dr. Lewis's recommendation that she should be removed from her family and surroundings and treated in a hospital.

*Examination of the Eyes.*—Ophthalmoscopic examination revealed nothing abnormal. The pupillary reactions were natural, and the excursion of the eyeballs good in all directions. The field of vision is normal for form, the color fields being slightly contracted, that for green being proportionately more contracted than the rest of the colors.

The following four cases are classified together chiefly because the most decided manifestation was local in its character.

CASE XV.—Hysterical, clonic laryngeal spasm; uncontracted form fields; color fields (red and blue) wider

than normal, with almost complete reversal of the red and blue lines.

A. C.; aged twenty-nine; female; single; book-keeper; Infirmary case. Family history negative; previous health good. Applied for treatment December 2d, 1892, stating she believed the wearing of a pessary for eleven months to have been the cause of the present trouble.

The patient is in a very nervous state; complains of "noises in the head" and "flutterings in the chest." There are choreoid twitchings of the body and of the eyelids. The larynx is in constant vertical movement, 140 times a minute. This stops during phonation, on deep breathing or upon being ordered to hold her breath. The muscles involved are the pharyngeal, palatal, laryngeal, digastric, and the muscles going to the hyoid. The omohyoids and the sterno-cleido-mastoid are not implicated. The sides of the neck are normal, there is no exophthalmos and no thyroid enlargement. The patient states that the movements do not cease during sleep. Speech is not affected. This rapid motion has continued for fourteen months and is said to be increasing.

The pupils are unsteady. The pulse is 100-120 per minute, increasing under excitement. There is no evidence of valvular lesion. The K. J. is normal. Miss C. has various hysterical symptoms, e. g., fancies she can see her eyes in the ceiling and of enlarged size. Sensibility is slightly lessened in the anus.

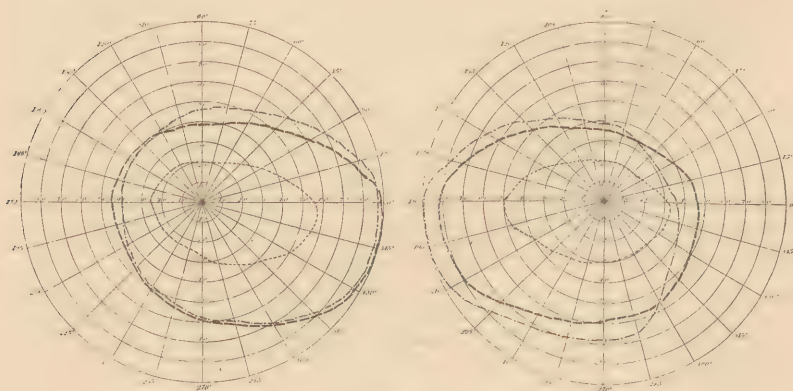


FIG. IX.

Diagrams of the fields of vision of Case XV, showing partial reversal of the red and blue lines and unusual extent of the red field.

*Examination of the Eyes.*—There are no lesions discoverable with the ophthalmoscope and no changes of importance in the external ocular muscles. The form field in each eye is normal; the color fields (red and blue) are wider in extent than natural, the red field being for the most part greater in extent; the green field, about natural in size, is in its normal position.

CASE XVI.—Hysterical contraction of the arm and legs; nearly normal form fields; practically normal color fields, with the exception of green, which was somewhat contracted on the left side; partial reversal of red and blue lines on the right side.

J. H.; aged thirty-seven; female; single. Private patient of Dr. J. K. Mitchell. A hard-worked Government clerk, in a responsible position, at the same time carried the burden of a large and poor family.

In 1891, coming suddenly out of a light room into a dark hall, she fell over a pile of books and bruised her shoulder. Little was thought of the accident at the time, and there was no atrophy of the shoulder muscles; but when, after several weeks, she still could not use her upper arm or raise it from her side, more attention was paid to it. It was found that although there was no wasting, there was complete loss of power for voluntary movement of the shoulder muscles. This continued in spite of every treatment, and soon the forearm began to bend and the fingers to draw into the palm. This contraction of the fingers continued, and they soon became closely adducted, with the thumb lying in the same plane as the fingers. The hand was a little flexed upon the wrist, and the palmar fascia, slightly contracted, made what we might term a cup-shaped hand. In the same way the forearm became more and more rigid at right angles to the upper arm, and the upper arm was held stiffly to the side, the forearm lying across the body at the waist, with the fingers pressing against the right side below the breast. With some exertion this contraction could be passively overcome, but the effort caused the patient slight pain at the elbow, and more pain if an attempt was made to raise the shoulder.

After some months she had progressive loss of voice, so that when Dr. J. K. Mitchell first saw her, in November, 1892, she could not speak above a faint whisper and went about with the arm in a sling, unable to get the sleeve of her dress on. In spite of every treatment the



condition remained unchanged for several months, and in February, 1893, a contraction of the legs occurred, at first affecting the adductor groups. Soon the thigh muscles contracted somewhat; the legs were bent upon the thighs at a right angle, and this contraction remained excessively strong, so that it was only by using an undue degree of violence that the legs could be separated from one another.

There was at no time loss of sensation in any part of the body. An effort was made to relieve the contraction of the arm by cutting some of the tendons, but, of course, they could not all be cut. This did no good, and the patient remains in this wretched condition, with very little prospect of improvement.

*Examination of the Eyes.*—Central vision and eye-grounds practically normal; no particular change in the external ocular muscles. The field of vision of the left eye is not far from normal, with slight contraction of the green field. On the right side the form field is normal. There was reversal of the red and blue lines on the vertical meridian, with slight concentric contraction of these fields. The green field, decidedly contracted, occupies its normal position. The left eye watered when she masticated, which may have been an hysterical symptom, but in the present case was probably connected with nasal difficulty high up.

It is to be said that while such a case presents the features of an hysterical contraction, there must always be a fear that side by side with the hysterical state there is a general degenerative change in the spinal cord, and the only hopeful feature lies in the fact that these degenerative diseases, when associated with hysteria, are, for some strange reason, more easily cured than similar changes unconnected with hysterical conditions.

CASE XVII.—Hysterical paralysis, with tremor; normal form fields; at first, partial reversal of the red and green lines (blue being normal in position); later no reversal, but red and green close together.

Mrs. M. H.; aged fifty-two; private patient of Dr. Weir Mitchell; has had five children, of whom three are living, and suffered with several miscarriages; but, until the beginning of the present trouble, her general health had been fairly good, although she describes herself as

of a nervous disposition, and she has had occasional fainting attacks from childhood. At one time there was frequent supra-orbital neuralgia, said to have been malarial in origin.

Her present complaint is of pain in and inability to use the left arm and shoulder, dating from October, 1892, when she had a fainting attack which lasted an hour. She fell upon the floor; but, after a few hours, was able to walk upstairs, and was perfectly clear in her head; nor was there any trouble with the shoulder until the next day, when it felt sore, and trouble in moving it developed slowly during the next month, since which time it has remained stationary. She is very emotional, weeps much, and is subject to fits of great depression. She has occasional vertigo; menstruation ceased two years ago.

The patient is very stout. The fore-arm and fingers are moved perfectly well. Movements of the left shoulder are restricted apparently both by pain and by weakness. On attempted passive movement of the shoulder, she fixes the muscles strongly and cries with pain. On active movement, there is shaking of the fingers and arms, which, at times, is very rapid and violent. This is usually absent when at rest, but is increased by emotion and by attention to it. The other arm sometimes shares in this same movement. The patient says that the arm was at one time swollen, but there is now neither enlargement nor wasting, and the muscles react well to Faradic electricity.

Sensation is normal in all forms on both sides. There is no pain on pressure over the nerves. The knee-jerk is very slight. The left biceps jerk very marked; the right biceps jerk very slight. Heart and lungs are normal. The dynamometer: right 30, left 10. The tremor is a large one,—not the fine tremor of a paralyzed arm.

*Examination of the Eyes.*—Central vision one-half of normal in the right eye after correction of a myopic astigmatism; normal in the left eye after correction of a compound hypermetropic astigmatism; no anomalies of the external ocular muscles, save slight insufficiency of the internal recti; pupillary reflexes natural; slight veiling of the margins of the optic discs, which are gray in their deeper layers. Macula on the right cornea; conjunctiva hyperæmic, but not insensitive. The first examination of the visual field revealed normal form field, contracted color fields, with partial reversal of the

red and green lines; later normal form field, normal blue field, green and red lines not reversed, but close together.

The case seems a bad one of simulated hysterical joint lesion with some contractions. The limitation of voluntary motion is both from spasm of the muscle and from weakness; the limitation of passive motion is from the weakness and from pain.

CASE XVIII.—Hysterical night ptosis; normal form fields; blue and red lines normal, but partially reversed; contracted green field, most marked upon the right side.

Mrs. M.; aged sixty-seven; 2 children. Was always nervous and her general health has never been good. She has suffered extreme privations and exposures, joining her husband in Nicaragua with Walker's expedition, and bearing a child while living there on scanty and bad food in an unhealthy climate. She had the severe malarial fevers of the region during this time.

Her family history includes no case of serious nervous disease, but the headache of which the patient now complains is a hereditary one. From childhood she has had, at frequent short intervals, violent head pain, usually beginning in the middle of the night and lasting till morning. The pain is described as "dreadful." It begins in the lateral occipital region and spreads rapidly over the whole head. It wears off in the morning hours, but leaves her prostrated.

Two years ago she first suffered with spasmodic closure of the eyes during the night. She wakes and finds herself unable to open her eyes. After some minutes of effort, she succeeds in raising the lids, but they at once close firmly again, and only after an interval can they be naturally opened once more. There is, at the same time, pain and sense of weight in the upper lid. In the morning the lids are stuck together and are opened with difficulty. This trouble has of late annoyed her again, after an absence of nearly two years, coming on now after a severe attack of congestion of the liver and a cystitis. There are no changes of sensibility to be found.

*Examination of the Eyes.*—There are no lesions in the eye-grounds of consequence, the refractive error being a slight hypermetropic astigmatism, the correction of



which gives normal vision. The eye muscles are sufficient.

The form field in each eye is normal. In the right eye the red field is the greatest in extent everywhere except on the horizontal nasal meridian, where it is exceeded in extent by the blue. The green field, considerably contracted, occupies its normal position. In the left eye the red field is again everywhere greatest in extent except on the horizontal meridian of the nasal side, where it is exceeded in extent by the blue. The green field, somewhat contracted above and below, occupies its normal position.

In another color field, taken somewhat later, precisely the same conditions obtain, except that the red field, again everywhere the largest save on the horizontal nasal meridian, considerably exceeds the normal limits;

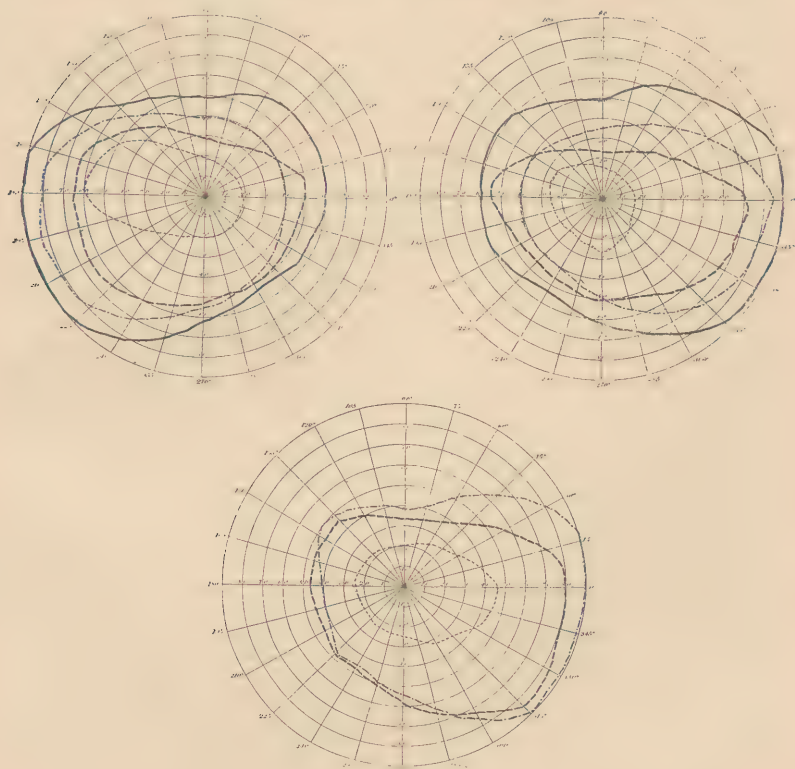


FIG. X.

Diagrams of the fields of vision of Case XVIII, showing partial reversal of the red and blue lines and contraction of the green.

in fact, it almost equals the ordinary form field. The blue field, about normal in extent, follows, while the green field, considerably contracted, is in its usual position.

This is evidently a case of spasmodic ptosis, of the sort described by Dr. Weir Mitchell in his lectures on nervous diseases. It is an hysterical symptom, and nearly always nocturnal in its occurrence, as in this case.

The difficulty of drawing a definite line which shall separate neurasthenic from hysterical states is illustrated by this patient's case.

She would be properly described as a depressed, somewhat hypochondriac patient, but she is hardly at an age when one would look for typical hysterical developments, yet the ptosis is undoubtedly pure hysteria, and no organic lesion can be imagined which could cause it as a solitary symptom.

The following cases may properly be classified as neurasthenic, and their histories are added in contrast to the examples of pure hysteria which have preceded them.

CASE XIX.—Cerebrasthenia; practically normal visual fields; slight reversal of the red and blue lines on the right side.

C. J. H.; aged forty-five; single; mechanical engineer. The patient was of good habits, worked to excess from boyhood, suffered much domestic trouble, especially by the death of a near relative from cerebral cancer, and had other worries which distressed him greatly.

In 1877 he was under treatment by Dr. Weir Mitchell for excessive irritability about trifles, causeless anxiety, etc., and recovered his health. In 1891 new annoyances in his family upset him again; he began to fear he would die from cerebral cancer, as his relative had done. His voice grew husky after talking; he could not articulate properly at times, saying his lips failed him, or he could not find the word he wanted.

Rarely, he had intolerably severe headaches in the

temples or at the vertex. He was always nervous and frequently dizzy. As the result of his worrying, his physical condition became very bad.

He sold a business which had grown by his painstaking and ingenuity to great importance, and came to Dr. Mitchell again for treatment. His eyes had been examined within a year and pronounced good by a competent oculist. He was anxious, unable to occupy himself, and had never learned to take any interest in matters outside of his business, which rendered his treatment difficult.

On examination, his physical condition, while it showed a general debility, gave no evidence of any material lesion; heart and lungs were sound, bowels and digestion fairly good, and the urinary examination negative.

He walked well, though somewhat stiffly. Knee-jerk and other reflexes normal. He was anæmic and under-muscled, and with a healthy life and out-door occupation readily reached a higher standard of health, when his cerebrastrhenic symptoms soon disappeared.

*Examination of the Eyes.*—The refraction was compound hypermetropic astigmatism, which had been corrected, and there were no lesions of importance in the fundus oculi or in the external ocular muscles.

The field of vision of the left eye was practically normal, the red and blue lines running rather close together; in the right eye the field also practically normal, except for a slight reversal of the red and blue lines above. These visual fields corresponded with those taken by Dr. Norris some time previous, who found no special change, save that the red and blue lines were in close proximity.

CASE XX.—Melancholic neurasthenia, with hysterical muscular hyperæsthesia; normal form fields; partial reversal of the blue and red fields; contracted green field.

E. R. S.; aged thirty; has been married nine years; had one child, which lived but a few hours. Family history is good, so far as organic disease is concerned, but several brothers and sisters are all of nervous dispositions, and her father suffered with nervous asthma throughout many years. The patient cannot remember to have been many days without headache since her childhood. She is worse since a very severe labor in 1887, when the cervix uteri and perineum were severely



torn and a forceps delivery was made under ether. She has never recovered from the depression of this illness.

She is now (October, 1892), very nervous; cries a great deal; has constant headache, with periods when it is very much worse for a week together. Her whole spine is very painful and tender. She is practically bed-fast; the bowels are very troublesome on account of a partial inability to retain fæces, from the injury to the sphincter muscle in the tear of the perineum, and she has constant nausea. She is fat, with an unwholesome kind of watery-looking flesh, and she suffers a great deal from chronic conjunctivitis.

*Examination of the Eyes.*—Vision, after the correction of a mixed astigmatism, as follows:

O. D. —  $50 + 3.25^{\circ}$  axis  $95^{\frac{6}{9}}$ .

O. S. —  $50 + 3.50^{\circ}$  axis  $90^{\frac{6}{8}}$ .

Exophoria  $12^{\circ}$ ; no lesions in the fundus oculi other than those incident to long continued eye-strain; conjunctiva not insensitive, but the papillary layer thickened from long-standing inflammation; refractive and muscular defects thoroughly corrected with glasses and prisms.

The field varied on different occasions, according to the patient's condition, an average field being the one presented in the diagram; namely, normal form, partial reversal of blue and red, and contracted green field, most decided upon the left side. At other times, however, the visual field was practically normal. It was always mapped with great difficulty, owing to the pa-

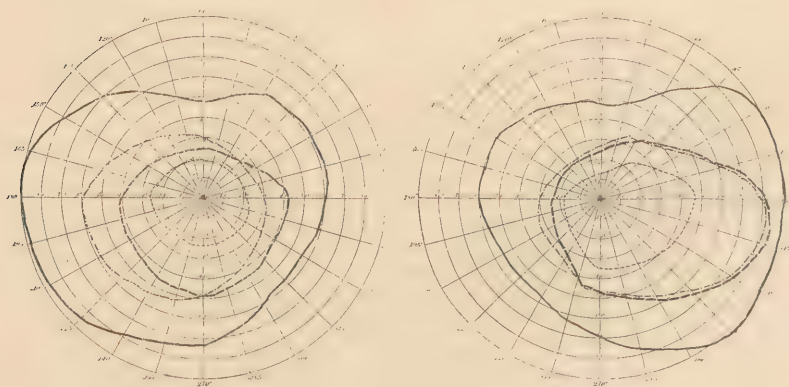


FIG. XI.

Diagrams of the fields of vision of Case XX, showing partial reversal of the red and blue lines without change in the form field.

tient's inability to maintain the eye with steadiness, or to keep it open, on account of the tendency to lachrymation.

The obvious physical troubles were supplemented by a very nervous disposition on the part of the patient and a tendency to melancholia, and the case is one somewhat difficult to classify, but should rather be called neurasthenic than hysterical. The one marked hysterical symptom was a decided muscular hyperæsthesia of the shoulders and arms and several areas of extreme tenderness in the spine. The vagina seemed also to be very irritable, so that a vaginal examination was rendered extremely difficult, and there was a small fistula communicating from the rectum into the posterior vaginal wall.

CASE XXI.—Sexual neurasthenia; hysterical hallucinations; no anæsthesia; irregular reversal of the color fields.

A. B.; a man, aged forty-two; a private patient of Dr. Edward Martin; was sent for examination October 14, 1889, to determine if possible the cause of very constant occipital headaches.

Many of the symptoms of this patient were hysterical in nature, chiefly in the form, however, of imaginings. He had at the same time undergone a severe mental strain with great affliction in his family, and was distinctly melancholic. The optic nerves were slightly gray. There was compound hypermetropic astigmatism, the correction of which yielded normal vision, but no careful field was taken.

More than a year after this, when his symptoms were rather those of neurasthenia, and especially sexual neurasthenia, a careful color field was taken, and exhibits conditions shown in the chart.

*Examination of Eyes.*—In the right eye the white line occupied its normal position; the red line was everywhere the greatest in extent of the color fields. Next came the blue above, but this below was exceeded in extent by the green field. The yellow line appears irregularly, part of the time exceeding all of the color lines in extent, but for the most part occupying the smallest area. In the left eye the conditions were very similar,

except that the red line does not everywhere occupy the greatest extent, being exceeded by the green line below and also to the nasal side. The yellow line is again for the most part the smallest in extent. There was no anæsthesia in this case at any time, and with the exception of the more or less characteristic color field, not any symptoms that were definitely those of hysteria.

It is extremely difficult to classify this case. At one time the symptoms were markedly hysterical in nature, and might properly be described as hysterical hallucinations, and there had been sufficient affliction in his family to cause apprehension that true melancholia would set in; later these gave place to a series of neurasthenic symptoms, of which the most marked was a sexual hypochondriasis. It was during this time that the very curious fields of vision were mapped, which in their irregular and bizarre character, somewhat resemble those of Case VI. The patient has entirely recovered, but has never been willing to submit to another examination of his fields of vision.

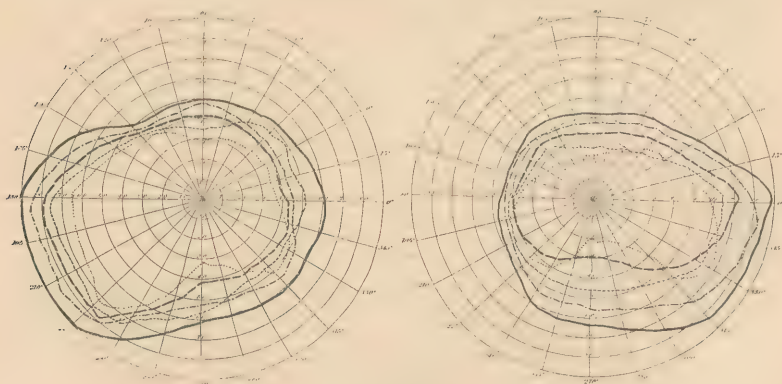


FIG. XII.

Diagrams of the fields of vision of Case XXI, showing irregular reversal of the color lines. Compare with Case VI.

CASE XXII.—General neurasthenia; hysterical, rapid respiration; practically normal visual field.

R. H. G.; aged thirty-two; a professor of literature; an intelligent, hard student, repeatedly overworked, al-



ways worried by trifles. He has broken down more than once, and is now in the Infirmary with a general neurasthenic state. Somewhat depressed, with sighing rather rapid respiration. A heart strangely irritable, running up wildly from trifling exertion or emotion. No organic disease, and but little functional disturbances of any kind beyond this cardiac difficulty, and the rapid respiration.

*Examination of the Eyes.*—In each eye the optic disc was of fairly good color, a crescent of choroiditis being situated at their outer portions; the refractive error was myopia, and there was moderate insufficiency of the internal recti muscles. There is practically no change in the visual fields, except slight concentric contraction of the color fields, most marked upon the left side, while the contraction of the green field is greatest on the right side.

The following cases of spinal injury are added because they represent, in a remarkable manner, changes in the field of vision, more ordinarily seen in hysterical states.

CASE XXIII.—Spinal injury; hysterical anæsthesia; marked irregular contraction of form and color fields, with nearly complete reversal of the red and blue lines.

Female; aged thirty-nine; mother of seven children. Applied for admission to the Infirmary for Nervous Diseases May, 1892, complaining of numbness in the spine, especially in the back of the neck, which had come on since a fall on the back in December, 1890, when she struck the nape of the neck and was for a short time unconscious. She broke a rib and sprained both ankles, and had pain in back of head for some time afterwards, being in bed some six weeks. She stated that after sitting for a time she found it difficult to rise, and that the headache was constant until recently, when it had been replaced by the numbness in the spine.

Sensibility to touch was impaired on both hands, more marked in the left, and there was impairment of thermal sense. The face, however, was sensitive to heat on the left side only. The conjunctivæ and the tongue were both insensible, and the face generally less sensitive than the body; indeed, a prick which brought blood produced no expression of pain whatever.

There was general anæsthesia, more marked on the

left side. There could be no sensation produced on the upper part of the body, even by the electric brush.

*Examination of the Eyes.*—The investigation with the ophthalmoscope reveals no lesions, and there are no changes of importance in the external ocular muscles; the pupillary reflexes are normal. The fields of vision show very remarkable changes; namely, marked concentric contraction of both form and color fields, nearly complete reversal of the blue and red fields, and great contraction of the green field upon the left side.

It was apparent that while the original shock and injury had been considerable, there was no lesion of the cord present to account for any of the symptoms, nor could anything else but hysteria have been capable of producing such a series of symptoms. This was fairly proved by the examination of the eyes, and the only strong fact against it was the absence of knee-jerk.

This case of slight spinal injury, with hysterical additions, may be compared with the much more severe case of R. N., which follows:

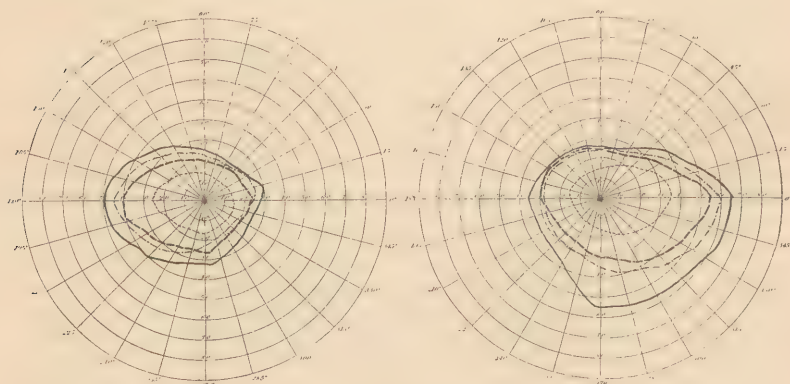


FIG. XIII.

Diagrams of the fields of vision of Case XXIII. showing general contraction and reversal of the blue and red lines.

CASE XXIV.—Spinal injury; contraction of the color fields, and complete reversal of the blue and red lines.

R. N.; female; aged thirteen. At the age of ten years the child fell twenty or thirty feet from a tree. There were no bruises or apparent injuries, and she was not stunned; but immediately upon being taken up she

exclaimed: "Stretch my arms and legs and fingers and toes." She could not use her arms, hands, legs, feet or head, and suffered from a pain so intolerable that she could not be moved in any way. The hands and arms and the whole anterior aspect of her body as low as the hips were extremely sensitive, so that she could scarcely be touched, even with a soft sponge. There was early and entire loss of sensation to pain and touch below this point. She did not pass her water voluntarily from the beginning, and after the first few days, for three months, there was a constant flow of urine; since then, however, the bladder is able to retain, though not to excrete, the urine. The bowels only moved by an enema, and the urine was, for the first nine weeks, very pale, almost watery, in its color, and extremely abundant.

After the first few weeks the nervousness passed away, and she began to move her head and presently her arms. About the same time (the end of the first month) the extreme sensitiveness of the arms gradually disappeared. With the exception of the contraction of the fingers, she has entire control of her body above the waist, although she is easily fatigued by sitting erect in a chair, and if the erect position is too long maintained begins to feel faint. This was the history up to December, 1892.

When the patient was first seen by Dr. S. Weir Mitchell (December, 1892), the following notes were taken:

As the child lies in bed she cannot move her legs, although by a strenuous effort it is possible to make some small movements. The fingers are flexed in the palm and can easily be passively straightened. This is accompanied with some pain. The hands turn inward and there is no voluntary movement of the digits. The hands can be extended from the wrist, but not flexed, adducted or abducted. There is free movement of the forearm and shoulder in every direction, but some weakness. The head and neck are perfectly moved. There is complete anæsthesia up to the level of the second dorsal vertebra. On the arms there is anæsthesia on the ulnar side of the forearm and posteriorly from fingertips to shoulder. The boundaries of sensation for touch, pain and temperature correspond, except that on the arms pain is felt. Plantar jerks are present. Clonus is sometimes present, sometimes absent. No knee-jerks; elbow-jerks marked; no marked muscular-jerk in legs or



arms. At times, without apparent cause, the legs become suddenly spastic, but usually are perfectly relaxed. On waking in the morning the legs are always spastic. Any pain, as the prick of a pin, or a Faradic current, causes jerking of the entire leg. A prick on the head is felt, but incorrectly located, as if the spine could not translate the nervous message. A prick upon the feet or legs, when felt, as sometimes happens, is referred to the head; this is true of both touch and pain. There is more atrophy in the intrinsic muscles of the hands and in all the thumb muscles. There is some atrophy in all the arm muscles, especially in the extensors, and the legs are a good deal wasted.

On examination of the spine no deformity could be seen. Sensitive spots were developed by percussion, but the position of these tender places seemed to vary almost minute by minute. During the examination it was noticed that the excitement consequent upon it had caused profuse sweating of the face, limited entirely to the right side.

The urine was alkaline and contained some pus and mucus, but no casts.

The child was of unusual intelligence, of most amiable and pleasant disposition, very quick and observing, and not at all hysterical. She had, with great pains and patience, learned to use her hands, in spite of the contraction of the fingers, so that she writes better than most children of her age, and draws quite cleverly with a pencil held between the contracted fingers and the palm of the hand.

*Examination of the Eyes.*—In each eye there was an oval optic disc, the temporal half being pallid, the veins full and slight haze throughout the eye-ground. The central vision was normal and the accommodation ample; pupillary reflexes natural.

The field of vision for form in each eye is natural; the color fields are contracted, blue and green being especially narrowed; there is complete reversal of the natural sequence of the red and blue lines, red being everywhere larger.

There was only one opportunity for making this examination, but there seems little doubt of its accuracy, owing to the unusual intelligence of the patient and the entire absence of hysteria or suggestion. For the pur

pose of comparative examination, a patient in the service of Dr. Weir Mitchell, with paraplegia from upper dorsal Potts' disease, was examined, in so far as the visual fields are concerned, without finding any changes whatever resembling those detected in the case just detailed. The fields of vision were entirely normal, both for form and color, and in the sequence in which the colors were appreciated.

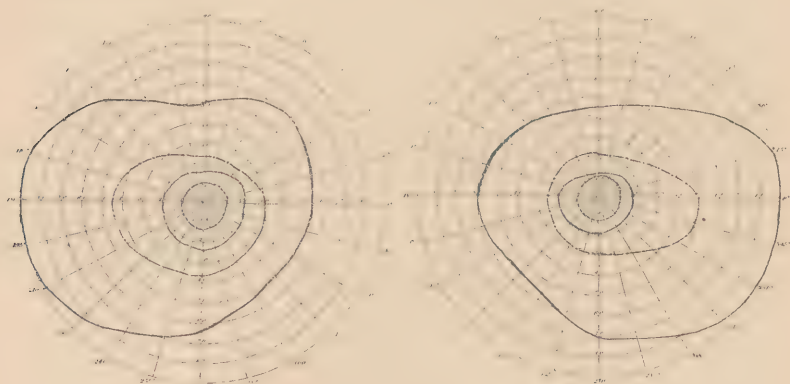


FIG. XIV.

Diagrams of the fields of vision of Case XXIV. Normal form fields; contracted color fields; complete reversal of red and blue lines.

CASE XXV.—Hysterical spasm of left arm; hysterical paraplegia; general convulsions; malingering; color fields normal on one side; contraction and reversal by suggestion on the other.

M. P.; aged forty-eight; tailor; German-Hebrew; married. Was first treated in Dr. Weir Mitchell's clinic at the Infirmary for Nervous Diseases, in 1877. He was then affected with a violent and uncontrollable spasm of the left arm. There was constant rapid pronation and supination of the left hand, flexion and extension of the forearm, and slight rotation of the whole limb around the shoulder. If he attempted to hold anything in the hand the object was thrown violently over his head. The patient was lost sight of after a few months, but returned in May, 1891, with violent movements of the left arm and some difficulty in walking.

The family history presented no cases of nervous or mental trouble. The patient was one of fifteen children,

of whom eight had died in infancy. His own health had been always good, until the attack which first brought him under observation in 1877. Later in that year he noticed a growing weakness of the left arm and of both legs, first after sleeping in a draught, and again after a small nervous shock. He could move the legs while recumbent, but after the first few weeks could not stand. This paralysis continued seven years, when on the suggestion of an acquaintance, he tried successfully to walk backward. During his son's serious illness he ran about the room for half an hour, but collapsed again after the excitement was over. He was treated in Germany and partially recovered his power of locomotion, which has remained fairly good since, with the peculiarities described below.

He walks with two canes, holding them straight in front of him and leaning but slightly on them. He steps very short, but his gait is normal after he once gets under way. If he attempts to walk supported by a hand, without his canes, he falls in a heap, after apparently violent efforts to step forward. He has occasional epileptiform spasm of the left arm, which may cause general convulsive movements, so violent as to throw him down. Consciousness is not affected. These attacks occur always after a muscular effort. A very slight sudden movement, such as forcibly closing the eyes, is sufficient to cause them. Spasms were brought on in hospital by massage and by hypodermic injections of water. The patient carried his canes and fed himself perfectly, although if ordered to perform rapid small movements with the hands there was some inco-ordination manifested.

His station is uncertain with open eyes, much worse if the eyes were covered. Sensation is normal in all forms. K. J. capricious and variable; reinforcible. There is an attempt at ankle-clonus. He has a tender spot in the spine over the second dorsal vertebra.

The patient was highly emotional, delighted with being observed as an "interesting case," and always much worse while under observation.

*Examination of the Eyes.*—Right eye: nearly round optic disc, gray in its deeper layers; scleral ring somewhat broadened. Veins full and arteries contracted; general rarefaction of the choroid; low myopia. Left eye: oval optic disc; scleral ring well marked all around, and broadening out into a crescent of choroidal



disturbance; deeper layers of the disc gray; pupillary reactions prompt. In the right eye, the visual field for form and colors is practically normal; only slight concentric contraction of the color lines. In the left eye there is restriction of the form field and irregular reversal of the color lines. This result was secured purely by suggestion. After the field of the right eye had been mapped, the ordinary phenomena which take place in hysterical cases, so far as the field of vision is concerned, were explained, with the result noted in the diagram.

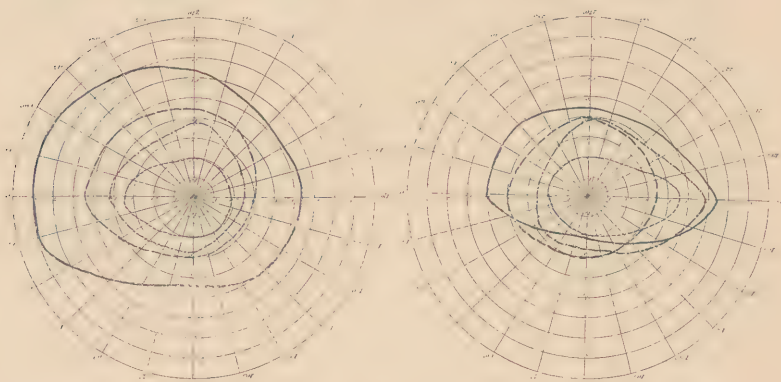


FIG. XV.

Diagrams of the fields of vision of Case XXV. Practically normal right visual field; irregular reversal in left visual field the result of suggestion.

This case was at the last mere malingering. At first there was a hysterical element, and the diagnosis made by Dr. Weir Mitchell was "male hysteria." A full report may be found in Dr. C. W. Burr's paper on "Unusual Forms of Spasm,"\* to which we are indebted for the history given here in abstract.

A rapid recovery resulted upon the withdrawal of the allowance made to him by a charitable society.

It is evident, from an examination of the fields of vision of the first series of seven cases, in which one or other of the varieties of anæsthesia is a marked symptom, that the most usual abnormality is a more or less complete transposition of the red and blue lines, red

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\* JOURNAL OF MENTAL AND NERVOUS DISEASE, May, 1892.

being the greater in extent. In two instances (Cases I and III) the red field is not only larger than the blue, but exceeds even the width of the form field, and in one (Case IV) there is partial reversal of the green and blue lines. Several of the cases, in addition to this abnormality in the sequence of the color perceptions, are characterized by great contraction of the general field (notably Cases I and V); in the latter true reversal was not demonstrated, but the extreme contraction of the field rendered it difficult to satisfactorily determine this point.

In one case only (Case VII) are the form and color fields normal in extent. As has already been pointed out, although there was anæsthesia in this case, it was of minor character.

It is notable that in the patient exhibiting the least marked general hysterical symptoms, there is the most remarkable deviation from the normal standard of the visual field, namely, Case I, where, in addition to reversal of the color lines, there is unusual contraction and binasal hemianopsia.

In the cases classified as examples of hysterical hyperæsthesia the disturbances in the visual fields are of secondary importance; slight increase of the normal extent of the color lines on the temporal side, partial coinciding of the red and blue lines, and moderate general contraction, being the only indications separating these fields from those which are found in normal individuals. Deviations so trifling as these, and so uncertainly present, cannot be regarded as peculiar to the condition.

In the cases classified as major hysteria it is notable that although there is contraction of the visual field in two of them, there is no reversal, and, in fact, no change which may be described as characteristic of the hysteric state, in spite of the magnitude of the general nervous phenomena.

In the cases classified together because the most decided manifestation was local in its character, the visual fields present all the varieties of changes common in

hysteric subjects. Thus, we find practically complete reversal of the red and blue lines, partial reversal, relatively greater contraction of the green than of the other fields, and what may be termed varying inequality of the fields, namely, sometimes partial or complete reversal of the red, blue and green lines, and, again, failure of such reversal, with practically normal extent of the color fields.

It is notable that in the cases of major hysteria there is no reversal and also no anæsthesia, and it is equally worthy of remark that in the local hysterias, although there is no anæsthesia, yet there is also more or less complete transposition of the red and blue lines.

In the cases classified together as neurasthenic patients, the changes in the visual fields are not very marked, with one exception. True, partial reversal of the blue and red lines and contracted green fields are evident in two of them, but the marked nature of these changes is less evident than in the pure hysteric cases, and this has been our experience in a number of other neurasthenic patients, whose histories are not included in this list. Indeed, in many of them the fields of vision are not far from normal, and if they exhibit any type of change it is that most often seen in anæsthesia of the retina, particularly studied by Wilbrand, a reference to which will be found in the earlier portion of the paper.

One of these cases forms a marked contrast, the fields of vision being characteristically hysteric in composition, namely, Case XXI. From the history, however, it is extremely difficult to classify this patient, as at one time his symptoms were markedly hysteric in nature, and at another time distinctly melancholic or neurasthenic.

The two cases of spinal injury represent in a remarkable manner changes in the field of vision. In one (Case XXIII) there was hysterical anæsthesia in addition to the spinal injury—an implantation of hysteria upon a probable organic lesion, and consequently the reversal of the red and blue lines might naturally be expected.



In the other case, with the most characteristic changes in the normal appreciation of the colors, and with undoubted organic lesion in the spinal cord, there is no good evidence that there was an hysteric element. It is a startling case. The changes may be individual, or possibly may be due to spinal injury. If due to spinal injury, they offer an inviting field for further investigation, although, so far as we have been able to carry this on by contrasting these fields of vision with other cases of spinal disease in about the same region, we have not found a similar change in the visual fields. Further data on this point are evidently needed.

The concluding case (XXV) of the series, so evidently one of malingerer, and yet so remarkable in its mimicry of symptoms which might be either hysteric or organic in their origin, so far as the visual fields are concerned, is an excellent example of the acceptance of suggestion as an aid to establishing the plausibility of his case.

In conclusion we submit the following propositions:

(1) Achromatopsia, or loss of color sense, as described in our previous paper (*American Journal of the Medical Sciences*, November, 1889), is not present in the American cases, (certainly not as it has been described by Galezowski and other French observers).

(2) Reversal in the normal sequence of the colors, so that red is the largest field, is usually present when there is anæsthesia, but that disturbance of the color-sense and anæsthesia do not necessarily belong to each other is proven by the fact that we have examined at least two cases of universal anæsthesia with no alteration of the visual fields, and a third case in which, although there was most marked contraction, reversal was not demonstrated.

(3) The green field is, relatively at least, more and more often contracted than the others.

(4) In the difficult distinction between certain types of neurasthenic and hysteric patients, the presence of disturbance in the color-sense is of diagnostic import; it

is less apt to be present in the former than in the latter, and yet its absence is of little meaning, as we have not found it in many typical cases of hysteria and have found it in others which are properly classified in the neurasthenic category.

(5) It is possible that in the rare cases of hysterical one-sided or general hyperæsthesia it will be found that colors are more acutely appreciated than is normal, and that the color fields are correspondingly enlarged, although we can make this only as a suggestion, having received a hint of it in one case, but not having found it in others.

(6) The violence of the hysterical manifestations bears no relation to the disturbance of color-sense, the most marked change being found in patients the least affected nervously, and practically normal visual fields where the general symptoms of hysteria, anæsthesia excepted, are of the highest grade.

(7) Some of the following changes, so far as the field of vision is concerned, are likely to be present in cases of hysteria:

(a) Simple contraction of the color fields, with unaffected form fields.

(b) Contraction of both form and color fields, the green field being relatively more contracted than the others.

(c) Partial or complete reversal of the normal sequence in which the colors are appreciated, most commonly that variety in which the red field is greatest in extent. Under these circumstances the color fields may be normal in extent, sometimes even wider than is normal, or there may be an associated contraction of all the color fields.

(d) Unusual obscurations of portions of the visual field, for example, in the form of a hemianopsia, or greater contraction of the fields on one side than on the other, the greater contraction usually being found on the same side with the anæsthesia.







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